

TARGHEE NATIONAL FOREST

Insect Control Program, 1965 - 66

Information Digest

June 1, 1966

INTRODUCTION

The Targhee National Forest is presently engaged in the largest insect-control program in its history. Thousands of acres of lodgepole pine are being killed by the pine bark beetle. The total pine timber stand is threatened by these insects. The beauty and grandeur of some of the most valuable recreation sites are in danger of being seriously damaged for many years in the future.

This information digest has been prepared to help the public understand what is involved in the effort to stop the epidemic; what resource is threatened; and what damage has occurred in the past few years.

I. History

Approximately the same areas under present attack were attacked in the late 1940's; and controlled, mostly by spraying with Ortho and by burning or peeling, in the early 1950's.

The present epidemic began in 1958. Control programs were begun in 1959, and have continued annually, in increasing magnitude.

Bark beetle epidemics seem to be cyclic, having epidemic buildups at about 7-8 year intervals.

II. Extent of Damage, Estimated

An estimated 38 million board feet of lodgepole pine timber has been killed during the past six years.

III. Potential Damage, Estimated

The trend to date has been for the loss to double annually. This would not continue, but would tend to level off and eventually decline. However, this would occur as stand volume declined, so it is not an optimistic viewpoint.

The total timber loss could, of course, include all the merchantable lodgepole pine on the Forest, almost 2 billion board feet.

More realistically, there is about 1 billion board feet which can be considered "threatened". The estimated possible stumpage value loss is between 50 and 85 million dollars.

IV. The Bark Beetle

The mountain pine beetle, Dendroctonus ponderosae Hopk. (monticolae), normally exists in scattered areas in tolerable or "endemic" amounts. The damage done, where in this status, is not worth the expense that would be involved in reducing it. While other insects, at limited population levels, can even be considered beneficial due to helping in the breakdown and decomposition of slash, litter, snags, etc., the bark beetle is not known to be effective in this way.

Endemic levels usually mean a buildup ratio of no more than one to one (i.e., only one successfully attacked tree for each brood tree), a forest-wide loss of less than 1 million board feet per year, and an average brood density of less than 100 per square foot of bark surface (the present epidemic averages about 265).

The reasons for infestation buildups, or epidemics, are complex and often unknown. It is suspected that certain combinations of environmental factors favorable to the bark beetle happen to occur at the same time; these include temperature, humidity, stand condition, predator decrease, etc. It is known that when these other conditions become favorable, the female beetle lays eggs in greater numbers than usual.

Adult bark beetles bore through the bark and into the cambial region between the bark and sapwood. The only weapon of self defense that a tree has is its pitch flow; if this is plentiful enough, the beetles are "pitched out". If not, the beetles deposit their eggs.

The eggs hatch into larvae, which feed on the growing tissue, fanning out and traveling several inches. If they are plentiful enough, they eventually girdle the tree. It takes hundreds or thousands of beetle larvae to overpower a tree, but when they do, they make short work of it and the tree is dead within 2 weeks or a month, although the tree's death is not evident for about 9 months.

When the larvae reach full growth, they transform to the pupa, or resting stage, and then to new adults, which emerge and fly to attack new trees. The beetle flights usually take place in early July.

V. Treatment

There are several methods which can effectively reduce bark beetle infestations to endemic levels. These include logging; felling and burning, peeling or treating with poison; standing burning; and standing spraying.

By far, the best method is logging. The trees must be felled and hauled to the mill and processed before bug flight starts in mid-July. This method is limited by the lodgepole pine mill capacity in the area. There are only two mills, which utilize lodgepole pine, close enough to the infested timber to help with the problem. The two mills are capable of taking up to about 25 million board feet of Targhee National Forest infested timber on private, state and other federal lands. The Targhee National Forest is expanding its sale program in an effort to take full advantage of this method. For the first time in its history, the Targhee National Forest will sell more than 20 million board feet of timber in one year, almost all of which is from infested timber stands.

Other excellent methods are the methods that include felling and either burning, peeling or sprinkling the trunk with Ethylene Dibromide. These methods are generally more expensive than other methods but they have some advantages. The primary advantage is that the treating is 100% effective. The only danger is missed trees as all other bug trees will have been removed.

Standing burning is a method that is used in the winter time when there is no danger of forest fires. Flame throwers are used to char the trunks of infested trees until they are hot enough to roast the beetles. This method of treating is economical only where there are a large number of bug trees per acre on fairly level ground.

The method used most frequently is standing spraying. This method is the most economical and the most practical to use in most situations. It is the best method to use in steep rough country or areas far from roads. Almost all of the present infestation will be treated by standing spraying. A solution of Ethylene Dibromide and Diesel oil is sprayed on all sides of the tree trunks from the height of the infestation (thirty feet or more in some cases) down to the base to completely soak the tree. The goop soaks into the bark and fumigates the beetle larvae. Prior to the spraying, the area is divided into strips about 180 feet wide and the infested trees are "spotted" and marked with tags.

IV. Statistics

1. It is estimated there are approximately 150,000 trees still needing treatment before July, 1966. About 100,000 trees have been treated during the fall, winter, and early spring, almost all of which were treated by spraying. Eighty-five percent of these were treated by independent contractors.

The trees to be treated are located as follows:

	<u>Treated</u>	<u>Remaining</u>
Spencer Ranger District	4,767	7,700
Island Park Ranger District	---	8,800
Ashton Ranger District	11,900	46,700
Porcupine Ranger District	33,600	44,600
Teton Basin Ranger District	47,733	39,200
Swan Valley Ranger District	<u>2,000</u>	<u>3,000</u>
TOTAL	100,000	150,000

2. Equipment and Supplies:

500,000 gallons of Ethylene Dibromide insecticide

15,000 jeep cans

300 spray pumps and rods

100 jeeps, pickups, carry alls, and trucks

1,500 gallons of paint

Uncounted numbers of many other items from soup spoons to beds and from hatchets to tree tags.

3. Manpower:

Forest Service crews estimated at 150 men.

Contractor crews estimated at 400 men.

4. Budget:

The total expenditures for the 1965-66 project which started in September, 1965 and will end in mid-July, 1966 will be about \$1,500,000. It will have been spent as follows:

Payments to contractors	586,400
Salaries & service for Forest Service crews	450,800
Ethylene Dibromide insecticide	92,700
Vehicle rental and travel	190,000

Purchase of equipment & supplies	130,100
Miscellaneous expenditures	<u>50,000</u>
TOTAL	1,500,000

5. Timber resource:

Treated trees (as of May 1966)	100,000
Infested trees (incl. Rexburg)	550,000
Infested trees (to be treated)	150,000
Area (acres) infested	100,360
Volume (Bd. Ft.)	15,000,000

6. Contractors:

<u>Name</u>	<u>Unit</u>	<u>Trees</u>	<u>Acres</u>
Angell	Cart Hollow	20,000	3,800
Angell	Bitch Creek	15,187	4,460
Angell	Pinochle	16,508	3,410
Angell	Dry Creek	12,000	5,080
Bevan	Rammel	13,753	5,000
Brown & Sons	Leigh Creek	15,944	3,370
Daniels	Sawtell	8,500	14,000
Daniels	Corral Creek	2,100	4,750
Daniels	Twin Mahogany	4,439	1,520
Daniels	Calf Creek	2,486	1,000
Hamblin	Middle Boone	3,420	409
Hathaway	Sheridan	5,890	2,330
Hathaway	Howard - Taylor	3,400	1,000
Hill	Dry Creek	400	250
Orgill	Fall River	8,900	2,556

Orgill	Fish Creek	8,500	6,216
Orgill	Porcupine	9,170	2,980
Peacock & Robson	West Bishop	10,535	2,450
Peacock & Robson	South Big Bend	15,500	4,450
Peterson	North Anderson Mill	4,150	3,450
Rudd	North Big Bend	8,500	4,450
Rudd	Anderson Mill	11,500	5,000
Stephens	Hidden Lake	7,719	1,934
Wilson & Rigby	Kiln Creek	7,680	730

VII. General

The Forest Service appreciates the opportunity to conduct tours to the project areas, give lectures or show movies about the project to interested groups or individuals. Anyone desiring such service may contact:

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